

vibration transmitted from the outside. As a result, external vibration transmitted from the meter structures, casing, etc. has had adverse effects on the performance of the Coriolis mass flow meter.

Furthermore, since this type of Coriolis mass flow meter using flow tubes comprising two parallel curved tubes has in its construction a branching part on the inlet side of the fluid being measured and a confluence part on the outlet side, pressure loss or fluid clogging is apt to occur. This is particularly true when a highly viscous fluid or a perishable and easy-to-clog fluid, such as food, is involved.

Furthermore, this type of Coriolis mass flow meter is required to be of a low-cost and sturdy construction so that it is sufficiently reliable even in case of damage to flow tubes. The conventional type of Coriolis mass flow meter, however, has been short of the requirement.

The conventional type of Coriolis mass flow meter has not been designed taking into account the effects of higher-order vibration modes that are intrinsic to vibrating flow tubes.

A drive unit 15 for driving the flow tubes 1 and 2 comprising two parallel curved tubes at the central part thereof normally comprises a coil and a magnet. The coil of the drive unit is installed on any one of the two flow tubes 1 and 2, and the magnet thereof is on the other flow tube so that the two flow tubes 1 and 2 are caused to resonate at an opposite phase with each other. A pair of vibration sensors 16 and 17, each comprising a coil and a magnet, are disposed at symmetrical positions with respect to the mounting position of the drive unit 15 to detect a phase difference proportional to a Coriolis force. The coils and magnets of these sensors are also provided in such a manner that the coil is disposed on any one of the flow tubes, and the magnet on the other flow tube via fixtures.

In these drive unit 15 and the vibration sensors 16 and 17, only the coils require wiring, and the magnets require no wiring. As a result, the wiring has been provided only on the surface of the flow tube having the coil in the conventional type of Coriolis mass flow